Part II: The Contribution of HRM to Corporate Entrepreneurship: a review and agenda for future research

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INTRODUCTION

Zahra, Kuratko, and Jennings (1999) noted that “some of the world’s best-known companies had to endure a painful transformation to become more entrepreneurial. They had to endure years of reorganization, downsizing, and restructuring. These changes altered the identity or culture of these firms, infusing a new innovative spirit throughout their operations…change, innovation, and entrepreneurship became highly regarded words”. Similarly, Dess, Lumpkin, and McGee (1999) noted that “virtually all organizations—new startups, major corporations, and alliances among global partners—are striving to exploit product-market opportunities through innovative and proactive behavior—the type of behavior that is called for by innovation and entrepreneurship”. This increased emphasis on innovation and entrepreneurial behavior within existing organizations involves a significant role for firms’ human resources and human resource management practices. The important question to be answered is: which human resource policies, practices and systems are likely to help initiate and sustain corporate entrepreneurship? The goal of this paper is to begin to answer this question by proposing a model of how critical elements of CE and HR fit together, discussing the important human resource management (HRM) elements necessary for initiating and sustaining corporate entrepreneurship behavior and by setting an agenda for important future research topics.

THE DUALITY OF HRM AND CE

Entrepreneurial organizations are those that are able to discover, evaluate and ultimately exploit opportunities at a greater rate than more conservative organizations (Miller, 1983; Shane & Venkataraman, 2000). Such organizations will tend to be proactive, risk-taking and innovative. Entrepreneurial organizations are better able to identify and leverage new technologies in the pursuit of value creation, often defining entirely new markets in the process (e.g., Lumpkin & Dess, 1996; Miller, 1983). Entrepreneurship is dependent upon being able to identify new opportunities and acquire and integrate new knowledge. Novel combinations of knowledge and capabilities in turn create new sources of value. This process rests upon the creation of informal networks within and across organizational boundaries (Bucic & Gudergan, 2004; Day, 1994; Kang, Morris & Snell, 2007).

The identification and acquisition of new ideas and new knowledge usually involves the autonomous contributions of middle managers (e.g., Burgelman, 1983; Floyd & Lane, 2000; Floyd & Wooldridge, 1999). Opportunity identification rests upon the willingness and ability of middle managers to create informal networks beyond the ones strictly needed for their ordinary working activity (Burgelman, 1983; Hornsby, Kuratko & Zahra 2002). By so doing, they contribute to the collection of innovative ideas from inside and outside the firm (Hornsby et al., 2002; Kelley, Peters & O’Connor, 2009). The identification of new opportunities implies freedom from existing beliefs concerning ‘the right way to do things’ or ‘what this organization does best’. These exploratory
Behaviors are therefore highly autonomous and routine-agnostic (e.g., Floyd & Wooldridge 1999). After discovering an opportunity, it is necessary to integrate that new knowledge into existing knowledge stocks, products, processes or strategies in order to exploit it (Ardichvili, Cardozo & Ray, 2003; Burgelman & Sayles, 1986; Cohen & Levinthal, 1990; Shane & Venkataraman, 2000; Zahra & George, 2002). This process is likely to involve multiple individuals within the organization (Floyd & Wooldridge 1999; Hayton & Kelley, 2006; Kelley et al., 2009). After its discovery, an idea or opportunity must undergo a process of empirical validation by receiving the evaluation of a network of people that the entrepreneur creates in order to get his/her idea accepted (Floyd & Wooldridge, 1999; Zahra, Kuratko & Jennings, 1999). The idea may also need to be aligned with organizational goals and activities or alternatively, the organizational strategy may need to be adapted to the new opportunity (Burgelman, 1983; Guth & Ginsberg, 1990). Therefore, the integration of an entrepreneurial idea is a process that moves from an individual to an organizational level (Burgelman & Sayles, 1986; Floyd & Wooldridge 1999).

The involvement of others is necessary in order to acquire resources for developing and testing the potential for value creation of new knowledge (Ardichvili et al., 2003). An opportunity has to be proven viable even before obtaining resources for its preliminary development (Burgelman, 1983). In order to receive a positive evaluation and get access to resources, entrepreneurial ideas must be championed throughout the organization (Day, 1994; Floyd & Wooldridge, 1999; Howell & Higgins, 1990). Champions engage other organizational members in the technical definition and development of an entrepreneurial idea and seek legitimacy and sponsorship from the key resource holders and decision makers within the organization (Floyd & Wooldridge, 1999; Howell & Higgins, 1990). In this way, new knowledge is integrated into a firm’s competences, renewing or extending them (Floyd & Wooldridge, 1999; Nahapiet & Ghoshal, 1998; Zahra, Nielsen & Bogner, 1999; Zahra & Nielsen, 2002).

Social interactions, as well as organizational routines, are particularly important for integrating knowledge that is more tacit in nature (Grant, 1996). Knowledge exchange requires an individual to have the opportunity to gain access to other parties, the motivation to exchange knowledge and the ability to combine knowledge (Nahapiet & Ghoshal, 1998). Therefore, managerial processes and systems, organizational structures, culture and values are all potentially influential upon the integration of new knowledge into products or services (Bucic & Gudergan, 2004; Hayton, 2005; Perrin & Rolland, 2007; Verona, 1999). The integration of the new into existing knowledge stocks and capabilities is influenced by a concern for the implementation of an organization’s strategic objectives (e.g., Cohen & Levinthal, 1990; Burgelman, 1983; 2000; Mom, van den Bosch, & Volberda, 2007; Zahra & George, 2002). The process of knowledge integration involves building consensus and invoking common goals (e.g., Burgelman, 1983; Burgelman & Sayles, 1986; Day, 1994; Perrin & Rolland, 2007; Zahra & Nielsen, 2002). Knowledge integration is an inherently social process involving interaction through internal organizational networks (Grant, 1996; Kang et al., 2007; Nahapiet & Goshal, 1998; Zahra & Nielsen,
Thus, the behaviors associated with knowledge integration may be described as collaborative and supportive of organizational routines (e.g., Grant, 1996; Morris, Davis & Allen, 1994; Wagner, 1995). This brief review suggests that there are two facets to the corporate entrepreneurial process from the perspective of HR. The first is oriented towards knowledge identification, acquisition or generation. The second, meanwhile, is oriented towards knowledge assimilation, evaluation and integration. The HR system must be influential upon the spontaneous, exploratory and autonomous strategic behaviors of employees (especially middle managers) and at the same time must support the induced strategic behaviors needed to maintain efficiency and discipline. According to Burgelman (1983), the organizational concept of strategy plays a pivotal role in both enabling and constraining behavior in organizations. The concept of strategy directly influences the day-to-day behaviors of employees in what Burgelman terms 'induced strategic behavior.' The strategic objectives of an organization shape its structure and processes and these create the conditions within which individuals and groups perform their work. Organizational leadership and culture play a very direct role in the establishment of a strategy and the subsequent creation of their organization’s structural context. As has been shown by Baron, Hannan and Burton (1999), HR systems reflect the strategic choices and preferences of organizational founders and leaders. In turn, HR systems play a significant part in reinforcing and rewarding the behaviors required for the implementation of existing strategic objectives.

Burgelman’s framework suggests that HRM practices are of significance to CE for two reasons. First, they may influence the extent to which employees engage in the behaviors needed to promote knowledge integration. Second, overly rigid HR policies may inhibit the autonomous strategic behaviors required to engage in opportunity identification and the acquisition of new knowledge and capabilities.

In addition to inducing strategic behaviors, the HR system plays a significant role in creating a context in which individuals are willing and able to perform the kinds of autonomous strategic behaviors that support CE. These behaviors include the formation and maintenance of social networks inside and especially outside of organizational boundaries (e.g., Kelley et al., 2009). They also involve the championing of novel ideas and the adoption of significant career risk in promoting and building support for ideas that have highly uncertain outcomes (e.g., Day, 1994). This autonomous entrepreneurial behavior occurs outside of the official processes of the organization but is critically linked to sustainable entrepreneurial outcomes.

THEORETICAL LENSES

There are three dominant theoretical perspectives in the literature that seek to explain how HRM may influence innovation and entrepreneurship: resources and capabilities based perspectives, the behavioral view, and social exchange theory derived explanations. These explanations are not mutually exclusive and each explains a part of the puzzle of the relationship between HRM and CE.
RESOURCES AND CAPABILITIES

The resource based view (RBV)(Barney, 1991) and the strategic capabilities perspective are dominant explanations for how HRM can influence organizational performance and have been widely discussed in strategic HRM literature (e.g., Becker & Huselid, 2006; Combs, Liu, Hall & Ketchen, 2006; Huselid, 1995; Wright, Dunford & Snell, 2001). The RBV explanation rests upon the role of HRM in building unique, difficult to imitate resources that create value. When this is achieved through HRM and organizational culture, organizations are able to leverage their human and social capital in the creation of unique tacit knowledge, building a base of intangible assets that are valued by stakeholders and create competitive advantages. One of the limitations of the RBV in this explanation is that it fails to provide sufficiently specific guidance on the creation of intangible assets.

The capabilities view extends the arguments of the RBV and seeks to provide greater specificity. According to this view, strategic and dynamic capabilities are created from combinations of organizational resources, processes and management practices (e.g., Teece, Shuen & Pisano, 1997) that facilitate the creation and integration of knowledge (e.g., Grant, 1996; Henderson & Cockburn, 1994; Kogut & Zander, 1992; Zahra & Nielsen, 2002). It is not only the created knowledge which represents the strategic resource. The resource also involves the capability for the continuous product, integration, and exploitation of that knowledge that sustains competitive advantage (e.g., Grant, 1996). Therefore, according to this view, the HR system must facilitate the acquisition (or creation), integration and exploitation of new knowledge. In so doing, the HR system itself becomes a strategic capability. Recent research has supported this perspective of the role of HRM in creating strategic, knowledge-based capabilities (e.g., Smith, Collins & Clark, 2003; Subramaniam & Youndt, 2005). Such studies examine the nature of these underlying capabilities and then connect specific HR practices with their creation. However, this connection relies upon two additional theoretical lenses: the behavioral view and social exchange theory.

THE BEHAVIORAL VIEW AND HR SYSTEMS

The basic argument of the behavioral view is one of the longest standing explanations of how HR systems influence organizational performance. HRM creates the ability, motivation and opportunity for individual and collective behavior in organizations. The appropriate behaviors are determined by the organization’s strategy (Jackson, Schuler & Rivero, 1989). Therefore, the organization should select HR practices that drive the creation or acquisition of requisite ability and motivation in employees, as well as providing the opportunity to use skills and knowledge which are created or acquired in this way. What has most significantly developed in this perspective is the view of HR systems, that notes that HR practices must not only fit externally with strategic objectives, but must also be internally matched so that individual practices work together as a coherent system in influencing behavior and do not contradict or undermine one another. When these two fits are achieved, the organization benefits from the impact
of HR practices that can both enhance productivity and reduce unwanted costs, such as dysfunctional employee turnover (e.g., Becker & Huselid, 2006; Huselid, 1995).

In the case of promoting CE, the evidence suggests that an important aspect of the HR system is that it promotes the autonomy and discretionary contributions of employees (Hayton, 2003; 2005). The first rationale for this is that autonomous strategic contributions are a necessary element in supporting the identification and pursuit of new opportunities (Burgelman & Sayles, 1986). The second is that it is through discretionary and prosocial contributions that necessary social capital can be built. This leads to the third theoretical lens through which the influence of HRM on CE can be understood: social exchange theory.

SOCIAL EXCHANGE THEORY

Social exchange theory is the basis for a number of concepts that are relevant to understanding CE: the creation of social capital, organizational citizenship, prosocial behaviors, perceived organizational support and relational psychological contracts. Each of these concepts is founded upon the universal norm of reciprocity whereby the receipt of positive treatment creates a motivation to reciprocate. Among employees this can lead to the development of trusting ties through which knowledge is exchanged (Bolino, Turnley & Bloodgood, 2002; Collins & Clark, 2003; Zhang, Wan & Jia, 2008). Between employees and their organization this leads to the perception of a supportive relationship in which employees are more willing to help the organization through spontaneous, voluntary contributions and to engage in innovative and proactive behaviors (e.g., Chandler et al., 2000; Eisenberger, Fasolo & LaMostro, 1990; Hayton, 2005; Zhang & Jia, 2010). Within the organization this also leads to the creation of greater levels of social capital, which creates the pathways through which knowledge is freely exchanged and ideas are created (Collins & Smith, 2006; Hayton, 2005; Kang et al., 2007).

These three perspectives, RBV/strategic capabilities, behavioral and social exchange, are mutually compatible and operate at different levels of abstraction as well as analysis. When focused on the organizational level of analysis, the RBV and strategic capabilities can be relied upon to explain sources of heterogeneity between firms. However, when explaining the nature and origins of resources and capabilities it is necessary to turn to behavioral and social exchange based explanations. The behavioral perspective is a contingency view and innovation and enterprise represent possible outcomes for which HRM investments may be developed. The behavioral perspective therefore explains the notion of fit/misfit, provides the foundation for understanding the HR system as a source of advantage (consistent with the RBV perspective) and points to employee behaviors as the foundation for these advantages. The social exchange perspective represents an important collection of explanations for the relational foundations of collaboration, cooperation, organizational learning and innovation. A full explanation for how, when and why HRM influences entrepreneurship must draw upon each of these perspectives to approach a complete understanding of the phenomenon.
Figure 1. A Process Model of the Integration of Human Resource Management and Corporate Entrepreneurship

HRM SYSTEMS AND CE: A PROPOSED PROCESS MODEL

Borrowing from the theoretical perspectives described earlier, the model in Figure 1 proposes that environmental antecedents impact the development and management of human resources in an entrepreneurial organization. Furthermore, as the model depicts, the influence of human resource practices bundled into a high performance work system (HPWS) is expected to positively affect the levels of human (knowledge, skills and abilities) and social capital (interaction, helping behaviors and relational connections) within the firm. Each of these resources has been linked to important individual, unit, and firm-level performance outcomes (Ployhart & Moliterno, 2011; Sun, Aryee, & Law, 2007; Wright & Boswell, 2002; Youndt & Snell, 2004). This model reflects the consistent theoretical work in the strategic HRM field that has argued that the link between HPWS and performance is channeled through a firm’s human resources (Wright, McMahan, & McWilliams, 1994). In particular, a firm’s human resources are seen as an important element in developing entrepreneurial behaviors that lead to a sustained competitive advantage (Wiklund & Shepherd, 2003). The specific model elements are described below.

ENVIRONMENTAL ANTECEDENTS

A growing body of research suggests that not only HRM practices but also broader concerns such as resource availability, organizational culture and leadership are all important influences on entrepreneurship within organizations (e.g., Hayton, 2005; Kuratko, Ireland & Hornsby, 2001; Zahra, Hayton & Salvato, 2004). The Corporate Entrepreneurial Assessment Instrument (CEAI) is one of the few research-based tools that attempt to measure an organization’s cultural or environmental readiness for entrepreneurial activity. Five factors have been identified including Top Management Support, Rewards and Reinforcement, Autonomy and Discretion, Time Availability and Organizational Boundaries. These factors reflect such issues as strategy and leadership, slack resources and organizational culture. The development of the survey items has been based on extensive research (e.g. Hornsby, Kuratko & Zahra, 2002; Hornsby, Kuratko,
Shepherd, & Bott, 2009; Hornsby, Kuratko, Holt, & Wales, 2012) that has gone through numerous iterations since publication of the original instrument (Kuratko, Montagno & Hornsby, 1990). The importance of macro-level variables (company type, environment, structure, and decision-making with entrepreneurship) has long been acknowledged. Miller (1983), found that firm type (i.e., simple, planning, and organic) moderated the relationship between the firm’s entrepreneurial behavior and several of the other variables identified. He concluded that varying conditions within a firm are associated with entrepreneurial strategy. Quinn (1985) identified a number of organizational antecedents for large corporations to consider when seeking innovative activity, including developing the atmosphere and vision required for such activity and structuring the organization for innovation. Sathe (1989) suggested that individual innovation is significantly associated with supportive leadership, organizational structure and the availability of resources. Hisrich and Peters (1986) established nine characteristics needed for an effective organizational environment for new venture creation, including management support, resources, experimentation and multi-functional teamwork. Zahra (1991) developed and tested a model that proposed the environment, corporate strategy and organization as the antecedents to corporate entrepreneurship. He also found evidence of a relationship between these antecedents and firm financial performance. Lastly, Damanpour (1991) conducted a meta-analysis of a large number of studies on corporate innovation and identified a number of factors that consistently appear to be related to corporate innovation activities such as specialization, managerial attitude and slack resources.

From this wide variety of factors that influence corporate entrepreneurship, we can distill the five recurring factors identified by the CEAI. The first element is management support, which relates to the willingness of senior managers to support an EO and to facilitate entrepreneurial ideas. The second factor is the use of rewards and reinforcement, as already described under our review of HRM practices. Autonomy and discretion make up the third factor. Employees must perceive an environment that empowers them to focus on entrepreneurial projects and make decisions about process and implementation. Time availability and its related resources form the fourth factor. Innovative activities require that employees perceive the availability of slack resources so that they can focus on entrepreneurial activity. Finally, the fifth element is organizational boundaries. Employees must perceive that the structures and processes in their organization do not obstruct idea implementation.

Numerous studies have been conducted to assess the reliability and validity of the CEAI. Kuratko, Montagno, and Hornsby (1990) initially established the Intrapreneurship Assessment Instrument (IAI) that included Top Management Support, Autonomy/Work Discretion, and Rewards/Reinforcement as factors related to an effective CE environment. Their results were reinforced by the findings of a study of 199 CEOs of U.S. based corporations, which examined these antecedents and the association between internal entrepreneurship and the financial performance of their firms (Zahra, 1991). Kuratko, Hornsby and Montagno (1999) expanded IAI and renamed it the CEAI. The expanded CEAI added Time Availability and Organizational Boundaries. Hornsby et al. (1999) supported the existence of these factors in a cross-cultural study of Canadian and U.S. firms. Hornsby, Kuratko, and Zahra (2002) found additional support for the five-factor CEAI and established sound psychometric properties.
Only a few works have addressed the role of organizational culture in promoting corporate entrepreneurship (e.g., Morris, Davis & Allen, 1994; Zahra et al., 2004). The limited research to date has tended to emphasize the role of individualism and collectivism, although, without doubt, other aspects of culture are expected to influence innovation and entrepreneurship (e.g., Chandler, Keller & Lyon, 2000). Individualism-collectivism is typically treated as a single continuum, with an organization able to be either more individualistic or more collectivistic. This dimension is relevant because what forms the foundation of innovation are the deviant behaviors of individuals willing to breach social norms, do something different and pursue individual interests that may lead to the acquisition or creation of new knowledge and ideas. However, for new knowledge to become embedded in products, processes or services it is essential that it be shared, combined and integrated, which requires communication and collaboration. Such behaviors are underpinned by more collectivistic values. As a result, a balance between collectivism and individualism has been argued for and empirical evidence supportive of this has been produced. Such a balance provides sufficient individualistic values that mavericks can emerge and pursue their own interests, while still rewarding and valuing collectively oriented collaboration and sharing. Both Morris et al. (1994) and Zahra et al. (2004) provide evidence for an inverted ‘U’ shaped relationship between an organization’s scores on a scale of individualism-collectivism and measures of its entrepreneurship. In summary, there is a growing body of evidence both for the broad contextual factors described in research on organizational environments, cultures and leadership as well as the more specific dimensions of the human resource architecture. As described in Figure 1, these are interdependent rather than independent influences and it is rare for studies to include all of these dimensions simultaneously. Nevertheless, the evidence is quite strong that these elements, individually and in combination, are influential upon entrepreneurial orientation and outcomes.

**HR SYSTEMS**

Human resource practices that impact the human and social capital within a firm help to enhance levels of creativity, innovation, and entrepreneurial behavior and can be categorized as part of a High Performance Work System (HPWS). Bohlander and Snell (2004) suggest that HPWS is a result of “a specific combination of HR practices, work structures, and processes that maximizes employee knowledge, skill, commitment and flexibility”. More specifically, Takeuchi, Lepak, Wang and Takeuchi (2007) state that “HPWS involve flexible job assignments, rigorous and selective staffing, extensive training and development, developmental and merit-based performance appraisal, competitive compensation, and extensive benefits” (p. 1069). According to Nadler, Gerstein and Shaw (1992), HPWS are implemented via “an organizational architecture that brings together work, people, technology and information in a manner that optimizes the congruence of fit among them in order to produce high performance in terms of the effective response to customer requirements and other environmental demands and opportunities”. Nadler, Nadler, and Tushman (1997), meanwhile, identified ten important principles for designing an effective HPWS, which are listed in Table 1. Each
of these principles center around building a system based upon design clarity, empowerment, culture and accountability.

**Table 1. Ten Principles for the Design of an HPWS**

1. Start the design with an outward focus on customer requirements and then work backward to develop appropriate organizational forms and work processes.
2. Design work around self-managed teams responsible for producing complete products or processes.
3. Work must be guided by clear direction, explicit goals, and a full understanding of output requirements and measures of performance.
4. Variances should be detected and controlled at the source.
5. Design the social and technical systems to be closely linked.
6. Ensure continuous flow of information to all areas of the system.
7. Enriched and shared jobs increase the motivation of individuals and enhance flexibility in assigning work and solving problems.
8. Human resource practices must complement and strengthen the empowerment of teams and individuals.
9. The management structure, culture, and processes all must embrace and support the HPWS design.
10. The organization and its work units must have the capacity to reconfigure themselves to meet changing competitive conditions.

Specifically, Nadler, Nadler, and Tushman argue that “the key to maintaining this flexible architecture is having clear design intent. If the purpose of the original design -- to enhance speed, accountability, customer focus, technological innovation, flattened hierarchy, or whatever -- is explicitly articulated, then there are clear boundaries for adding, deleting, or rearranging design elements (Nadler et al.).”. In the case of fostering innovation and entrepreneurship, the key is to strategically foster innovative behavior by designing human resource systems that support and provide incentives for such behavior.

Beugelsdijk (2008) studied the impact of changing six human resource practices on incremental and radical innovations. Incremental innovation focuses on smaller process improvements and changes and radical innovation includes major product or process changes and new product development. In a study of 988 Dutch firms, he found that firms with decentralized organizational structures and a focus on employee empowerment, as reflected in the use of task autonomy and flexible working hours, generated more product innovations. He also found that performance-based pay and training and development were positively associated with incremental innovation, but not with radical innovation. This work was further supported by Messersmith and Guthrie (2010) in a study of small U.S. based firms, in which a positive association was reported between the utilization of HPWS and both product and organizational innovation.

Three of the key human resource subsystems that create an HPWS can broadly be configured as “knowledge management”, “compensation and incentives management” and “policies and design”. Each of these practice-bundles is depicted in Figure 1 and described below.
KNOWLEDGE MANAGEMENT

Knowledge management includes attracting, retaining, and developing individuals with the knowledge, skills and abilities to meet the goals of an organization. This is the first component of creating an HPWS and includes utilizing selective staffing techniques and investing in appropriate training and development activities. A selective approach to staffing is distinguished by standardized practices, such as ability testing and structured interviews, to identify the best talent available (Huselid, 1995; Way, 2002). Selective staffing places an emphasis on both enhancing the quality of candidates and increasing the likelihood of finding quality employees with the right profiles of knowledge, skills and abilities to fit the firm’s innovative stance. Utilizing a multi-hurdle selection process that allows for an assessment of an individual’s creativity, intellect and ability to work well with others provides better information to decision makers and increases the firm’s reputation by signaling to applicants that the organization is selective about whom it hires (Rodwell & Teo, 2008; Way, 2002). Greater rigor in the selection process will likely enhance the quality of human capital that will enter the organization and increase the likelihood that the firm will be able to produce new innovations.

In addition, firms willing to invest in training and development activities for their employees in job-specific, company-specific and industry-specific areas will likely see an increase in the levels of human capital within the firm (Kotey & Folker, 2007; Way, 2002). By pairing training systems with selective staffing the firm can experience enhancements to human capital endowments that will allow them to achieve higher, more productive levels of innovation (Thornhill, 2006). Employees who are able to continually refine their skill sets as necessary to exploit new market opportunities are likely to be more productive in entrepreneurial organizations. According to Hayton and Kelley (2006), corporate entrepreneurship is promoted by the simultaneous presence of competency in the four roles of innovating, brokering, championing and sponsoring. In order to foster corporate innovative activity, employee development activities focused on engendering these competencies should be a central focus of a corporate innovation strategy.

It bears noting that traditional selection and employee development procedures may not always be productive when it comes to hiring and developing entrepreneurial employees. Typical procedures tend to be job-based and are built to identify individuals who will adhere to policies and procedures, follow instruction and work towards fitting into a company profile. Very little empirical research exists to help us better understand the requirements for and the impact of directly seeking creative and entrepreneurial employees. However, there is ample discussion in the applied literature on some recommendations to attract, retain and develop these types of individuals (i.e., Cascio & Aguinis, 2008; Sutton, 2001).
COMPENSATION AND INCENTIVES MANAGEMENT

The second component in creating an HPWS involves employee compensations and incentives. The previous elements help to prepare employees and organizations for successful HPWS implementation and operation but without effective compensation management, the system will most likely fail. Organizations need to find a way to link pay with performance in order to incentivize employees to focus “on outcomes that are beneficial to themselves and the organization as a whole” (Bolander & Snell, 2004). Entrepreneurial behavior is developed and enhanced by reward systems that account for feedback and organizational goals while also emphasizing organizational results, collaboration and individual responsibility (Hayton, 2005; Hornsby et al., 1993).

Incentives can take many forms, with some examples being stock options, other equity plans, profit sharing plans, pay raises, bonuses for meeting performance targets and other monetary incentives. In addition, incentives can take the form of non-monetary options such as time off, flextime, autonomy and other special employee benefits. In terms of innovation and entrepreneurship, incentives should vary based on the need for incremental or radical innovations. Incremental innovations may be more suited to more traditional incentives including intrinsic rewards (flextime, autonomy, etc.) and extrinsic rewards (bonuses, merit increases, profit sharing, etc.). However, more radical innovations may require more substantial forms of incentives that are often more difficult to administer and tend to foster apprehension from top management. These incentives include organizational equity in the form of stock, stock options or even large equity stakes in venture spin-offs. Beugelsdijk (2008) affirmed this in his study of Dutch firms and found that incremental innovations are relatively easier to motivate with traditional HR practices but the ability to motivate radical innovations is much more limited because more sophisticated reward systems are not available.

In a study of CE in Israeli defense firms, Lerner, Azulay, and Tishler (2009) confirmed the importance of building effective entrepreneurship-oriented compensation programs. The findings of their research suggest that management should not only call for compensation for entrepreneurs but should also make sure that the system of reward they choose is important and acceptable to the entrepreneurs. Their results show that there is a large gap between the compensations that corporate entrepreneurs actually desire and the ones actually practiced by the enterprise. They also found that even when more desirable compensation programs were utilized, many of the corporate entrepreneur respondents were not aware that such incentives were in place.

POLICIES AND DESIGN

The design and administration of organizational policies and procedures also forms an important aspect of an HPWS. An entrepreneurial firm should place a greater emphasis on designing policies and structures that enhance participation, open communication and collaboration. Furthermore, providing an increased opportunity to participate in decisions is critical to creating an entrepreneurial orientation. With greater information sharing and transparent communication, organizations can give managerial support and help to equip
individuals at all levels of the organization. By enabling collaboration and open communication, an organizational structure can decrease impediments to their pursuit of entrepreneurial initiatives (Hornsby et al., 1993; Hornsby et al., 1999; Hornsby et al., 2002).

Conversely, innovation and entrepreneurial behavior are limited by organizations that focus on policies that create boundaries and overly regulate individual behavior. Traditional human resource practices such as creating job descriptions, policy manuals, safety manuals and operating standards can inhibit desired behavior. A manager’s rigid enforcement of policies can also have unwanted effects on employee behavior. While some of these are necessary and important to the operation of the organization (especially those legally required), these traditional practices may also inhibit the creativity and entrepreneurial behavior desired when implementing a corporate entrepreneurship strategy.

Hayton (2003) suggests that human resource management practices fall into two categories: traditional HR practices and discretionary HRM. The traditional practices focus upon “clearly defining jobs in terms of their tasks, duties, and responsibilities; carefully structuring equitable rewards for those jobs; and monitoring individual performance”. These practices are incongruent with the creativity, innovation and risk taking required for innovation and entrepreneurship. Discretionary HRM practices, on the other hand, focus on employees’ performance by offering incentives and mechanisms for exchanging knowledge and encouraging organizational learning. In a study of 99 small to medium enterprises, Hayton found that discretionary HR practices, specifically discretionary behavior, knowledge sharing and organizational learning, were positively associated with innovative performance. This positive relationship was strongest in high technology industries.

As discussed, the discretionary HRM practices related to information sharing and employee involvement are recognized as key elements of HPWS because they allow employees to make decisions that affect their immediate environment, which in turn affects the entire organization. This empowerment leads to a greater commitment to work and better organizational citizenship, which should ultimately enhance both the human and social capital within firms.

**ENTREPRENEURIAL ORIENTATION**

Developing a firm-level entrepreneurial orientation (EO) follows from the development of the corresponding necessary practices at the top-levels of the organization. This allows for the implementation of an HPWS that generates the requisite human and social capital within the firm for pursuing a corporate entrepreneurship strategy. EO is an organizational state or quality that is defined in terms of several behavioral dimensions. Based on the pioneering work of Miller (1983), Covin and Slevin (1989) defined EO as implying the presence of risk-taking, innovative and proactive organizational behavior.

At least three models suggested by Covin and Slevin (1991), Lumpkin and Dess (1996) and Ireland, Covin and Kuratko (2009) incorporate the antecedents and/or consequences of the organizational-level phenomenon of EO. The Ireland, Covin and Kuratko model of a strategy based on corporate entrepreneurship (CE) differs from the others in four ways: (1) by conceptualizing EO as an
organizational state, (2) by specifying organizational locations from which innovative behavior may emerge, (3) by specifying a “philosophical” component of a CE strategy and (4) by specifying that organizations can pursue innovation as a separate and identifiable strategy. It is our contention that human resource management systems, as described earlier, play a major role in the execution of an entrepreneurship strategy that can lead to EO. The human resource practices that create an HPWS facilitate the execution of such a strategy. Many studies support a positive correlation between EO and organizational performance. Given the multi-dimensional nature of performance, there have been many studies that have examined the connection between EO and both financial and nonfinancial performance. The financial indicators examined have linked EO to growth, sales and profit. Nonfinancial measures include the number of ideas implemented and the satisfaction of the owner, organizational leaders or employees. These studies have generally supported a positive connection between EO and firm performance, particularly financial performance. This support has been underscored by a recent meta-analysis completed by Rauch et al. who observed that the Covin and Slevin EO scale possessed a positive, moderately large correlation with performance (r = .235). The Rauch et al. study equates the strength of the EO-performance relationship to that of taking a “sleeping pill and having a better night’s sleep”. These results augment a growing understanding within the field that EO has a positive influence on bottom-line results.

**ENTREPRENEURIAL MODERATORS/FACILITATORS**

As previously stated, corporate entrepreneurship is dependent upon a capacity to identify new opportunities, acquire information and integrate new knowledge. As indicated by Figure 1, the relationship between entrepreneurial orientation and outcomes/performance is not without important contingencies. Two which have emerged consistently in research over the last decade are absorptive capacity and ambidexterity. These two variables are expected to moderate the association between EO and organizational performance, measured in terms of market or financial outcomes. We now describe these relationships in more detail.

The ability to acquire and integrate new knowledge is generally referred to as “absorptive capacity”. Organizations should focus on balancing exploration activities with the need to focus internally and exploit existing knowledge resources. This need for a balanced focus is referred to as ambidexterity. Both absorptive capacity and ambidexterity moderate the impact of an organization’s entrepreneurial orientation on performance. A description of these moderators is provided below.
ABSORPTIVE CAPACITY

When organizational environments are characterized by uncertainty and change, analyzing cause and effect relationships, such as those between behaviors and outcomes, becomes increasingly difficult (Murray, 1984; Teece & Pisano, 1994). In such environments, it becomes even more important for organizations to understand how augmenting their existing processes with additional capabilities can help them become more successful (Zahra, Filatotchev, & Wright, 2009). In addition, the ongoing acquisition and utilization of knowledge become even more critical (Bottazzi, Dosi, & Rocchetti, 2001; Chandler & Lyon, 2009).

The knowledge-based view of firms suggests that knowledge resources are essential for facilitating an organization’s performance (Grant, 1996). Knowledge of internal capabilities enables managers to more effectively align resources with initiatives (Kor & Mahoney, 2005). The ability to access heterogeneous knowledge bases and the differential use of similar knowledge bases can assist an organization in achieving its goals and gaining advantages over its rivals. In particular, when different but related innovations undergo R&D efforts, complementarities can be created that enhance the development of each innovation (Cohen & Malerba, 2001). Moreover, to the extent that much of the knowledge created during this process is tacit or intangible, this knowledge becomes increasingly important as organizations grow (Langlois & Robertson, 1996; Sanders & Boivie, 2004). Thus, an organization’s ability to understand and utilize knowledge is instrumental in its efforts to develop in competitive environments.

Central to an organization’s ability to comprehend and use knowledge is absorptive capacity. Absorptive capacity could be fully defined as the ability to “recognize the value of new, external information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal, 1990: 128). Consistent with this, Zahra and George (2002: 186) defined absorptive capacity as “a set of organizational routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organizational capability”. Zahra and George (2002) further separated absorptive capacity into potential and realized forms. Potential absorptive capacity is the acquisition and assimilation of knowledge, while realized absorptive capacity is the transformation and exploitation of knowledge. Together, these two forms of absorptive capacity provide an organization with the ability to use knowledge to innovate.

In particular, absorptive capacity influences an organization’s ability to make the most of existing knowledge stocks and flows (Dierickx & Cool, 1989). This knowledge can flow from a variety of sources, including customers (von Hippel, 1988), geographic locations, alliances and research and development activities (DeCarolis & Deeds, 1999). Knowledge resources can be very valuable (Grant, 1996; Kogut & Zander, 1992) but those related to innovation can be difficult to manage effectively because of the information asymmetry that is present throughout organizations (He & Wang, 2009). Knowledge and the ability to utilize it are not spread uniformly around organizations. If it is not broadly disseminated, there may thus be inefficiency (Lenox & King, 2004).

A widely used indicator of absorptive capacity is investment in R&D (e.g., Zahra & Hayton, 2008). Such investments create a stock of knowledge that can facilitate the identification of the relevant new knowledge and technology that
underpins innovation and entrepreneurship (Cohen & Levinthal, 1990). These investments in knowledge stocks are needed to support both the recognition and the assimilation of new knowledge. Without them, the workforce’s ability and opportunities for entrepreneurial action would be undermined. Absorptive capacity therefore serves as a constraint on organizations’ capacity for generating value from EO. While the correct HR architecture and the organizational environment might promote an innovative, risk seeking and proactive workforce, without sufficient capacity to identify, acquire and assimilate new knowledge within the organization, there will not be sufficient “raw materials” for innovation and entrepreneurship to take place.

**AMBIDEXTERITY**

Organizations vary in the extent to which they focus on creating new business opportunities rather than attempting to capitalize on existing ones (Mintzberg, 1973; Lamberg, Tikkanen, Nokelainen, & Suur-Ikkonen, 2009; Schmitt, Probst & Tushman, 2010). Although some existing businesses (for example, product lines) are prone to decline because of environmental changes, it is generally inefficient and extremely difficult to rely solely on the establishment of new businesses to increase performance. Therefore, most successful entrepreneurial organizations are likely to deploy some of their resources to efficiently manage existing businesses, termed exploitation, and some of their resources in efforts to create new businesses, termed exploration (Murray, 1984). Although there can be a wide variety in the emphasis that organizations place on exploitation or exploration, some type of balance between the two is usually necessary to avoid severe misfit on one of them (Gresov, 1989), constraints associated with premature lock-in (Rivkin & Siggelkow, 2006) and negative performance implications (Van Looy, Martens, & Debackere, 2005).

Those organizations that are capable of simultaneously exploring innovations and exploiting them are referred to as ambidextrous (Duncan, 1976; Tushman & O'Reilly, 1996). While it appears logical to engage in both exploitation and exploration simultaneously (Greve, 2007), organizations may have difficulty finding the right balance between the two and they may not be equally adept at managing both types of processes (Ebben & Johnson, 2005; Levinthal & March, 1993; Schmitt et al., 2010). For example, an organization may have managerial preferences for internally or externally derived knowledge and this could influence whether the organization focuses on exploitation or exploration (Menon & Pfeffer, 2003). In addition, organizations tend to continue doing what they already know how to do so they may misapply existing solutions (Cohen, March, & Olsen, 1972) or rely on previous capabilities that have become core rigidities (Leonard-Barton, 1992). These conditions can lead to an overreliance on exploration or exploitation. The general recommendation is for organizations to be flexible in seeking valuable opportunities but then committed to their exploitation once they have been discovered (Ghemawat, 1991). Exploitation enables organizations to capture the potential returns identified with opportunities (Hill & Roethaermel, 2003). However, too much focus on exploitation may provide short-term benefits but damage an organization’s ability to profit from future opportunities and subsequently survive in the long run (Van Looy, Martens, & Debackere, 2005).
Part of the challenge associated with being ambidextrous is that the routines involved with exploitation are often different from and interfere with those associated with exploration (Benner & Tushman, 2003; Duncan, 1976). For example, exploitation involves working with existing knowledge (Lechner, Frankerburger & Floyd, 2010) and focusing on such things as seeking control, certainty and invariance in order to extract maximum profits from existing capabilities and positions (He & Wong, 2004; March, 1991). If not managed appropriately, goals of this type can interfere with the search for and promotion of future opportunities (Benner & Tushman, 2003; Sterman, Repenning, & Kofman, 1997). Moreover, when these efforts require significant change, the more institutionalized the exploitation activities are, the more resistance there is likely to be to change efforts (Giddens, 1984; Jarzabkowski, 2008). In other words, future adaptation can be impaired if an organization has adapted too well to its current environment (Levinthal, 1994). In contrast, an excessive focus on exploration can also negatively influence performance because it inhibits them from profiting from previously captured opportunities. For example, excessive exploration can cause the disruption of routine processes associated with exploitation, thereby causing inefficiencies (Hannan & Freeman, 1984).

In addition to the above, newer organizations may not have sufficient resources to easily and productively engage in both exploitation and exploration at the same time (March, 1991). Therefore, it is particularly important for these organizations to be ambidextrous (Mahoney & Pandian, 1992; Penrose, 1959; Van Looy, 2005). Using organizational resources for exploitation and exploration efforts can lead to a sustainable competitive advantage (Sirmon, Hitt, & Ireland, 2007). However, it can be difficult switching between these efforts because organizational members who benefit from an organization’s current power structures are not inclined to risk a loss to their organizational standing as the organization transforms from one mode to the other (Pfeffer, 1992). One option to enhance the ability to be ambidextrous is to isolate exploration and exploitation activities either temporally or spatially (Benner & Tushman, 2003; Christensen & Bower, 1996; Nickerson & Zenger, 2002). Along these lines, Thompson (1967) suggested that organizations isolate their technical cores from external uncertainty in order to improve efficiency, while separately dealing with that uncertainty outside of the technical cores in order to enhance adaptation of the organization. This type of decoupling can increase flexibility (Doz & Kosonen, 2010). In a similar fashion, managers can try to develop the parts of their organizations that have achieved successful exploration and need to operate in an exploitative manner to enhance performance. Simultaneously, managers can strengthen exploration efforts, such as developing new technologies, while using a different set of competences (Danneels, 2008). In addition, semi-structures can be used to enable simultaneous actions associated with efficiency and exploration (Brown & Eisenhardt, 1998). These structures can be designed to provide some guidance for efficiency purposes and some flexibility for adjustment when engaging in exploration. Both isolation and semi-structures can enable organizations to enhance their ambidexterity and, subsequently, improve performance (Eisenhardt, Furr & Bingham., 2010). Ambidexterity therefore represents an important moderator of the association between EO and measures of organizational performance. The relationship between EO and performance is always constrained by the degree to which EO is balanced by the continued maintenance of exploitative capabilities. If EO is not
balanced with exploitative capabilities, then organizations may find themselves remaining in an exploratory mode and failing to exploit their existing capacities. While the addition of new businesses and the development of new opportunities can add to top line growth (e.g., Rauch, Wiklund, Lumpkin & Frese, 2009; Zahra, 1996), the literature on ambidexterity suggests that economic efficiency and long run survival depend upon the ability to successfully exploit newly built capabilities. Therefore, ambidexterity is expected to positively moderate the association between EO and diverse measures of organizational performance such as sales growth, financial performance and organizational survival.

**FUTURE RESEARCH NEEDS**

The literature on the relationship between investments in human resources and corporate entrepreneurship processes and outcomes has grown steadily over the last two decades. In our review, we have attempted to organize these within an integrative framework. We are in a position to identify numerous specific predictions regarding HR practices and their related environmental variables that facilitate organizational innovation and adaptation. Yet, while much research has been undertaken, many questions remain. In this closing section, we will highlight three major issues, which we believe hold significant theoretical as well as practical significance.

The first big question that future research should address is this: how do HR architectures contribute to ambidexterity, particularly contextual or behavioral ambidexterity? (Gibson & Birkinshaw, 2004). Similarly to exploratory and exploitative learning, the twin capabilities of opportunity identification and knowledge integration rest on distinct processes and underlying behaviors (Kang et al., 2007; Zahra & George, 2002). Opportunity identification depends upon exploratory learning that breaks away from existing routines and capabilities (Burgelman, 1983; Christensen, 1997). The acquisition of new knowledge, meanwhile, depends upon the creation of informal networks that extend beyond organizational boundaries (Day, 1994; Kang et al., 2007). This type of learning frequently emerges as a result of bottom-up processes involving autonomous contributions from middle managers and the leveraging of social networks inside and outside of the organization (e.g., Burgelman, 1983; Floyd & Lane, 2000; Floyd & Wooldridge, 1999; Mom, van den Bosch, & Volberda, 2007). In contrast, knowledge integration is intrinsically dependent upon existing knowledge stocks and capabilities (Cohen & Levinthal, 1990; Mom et al., 2007; Zahra & George, 2002). It is influenced by current strategic objectives and concerns for the implementation of quality and efficiency discipline (e.g., Burgelman, 1983; Mom et al., 2007).

The distinction between opportunity identification and knowledge integration extends to the behaviors required to support these capabilities. Since opportunity identification necessarily involves the ability to not be constrained by existing norms and beliefs concerning means-end relationships, the spontaneous exploring and probing behaviors associated with opportunity identification may be described as individualistic, autonomous and routine-agnostic (e.g., Floyd & Wooldridge 1999). In contrast, knowledge integration requires consensus building, the invocation of shared goals, leadership and strong organizational knowledge (e.g., Burgelman, 1983; Burgelman & Sayles,
1986; Day, 1994; Zahra & Nielsen, 2002). The integration of new knowledge with existing knowledge and capabilities involves social interactions requiring strong internal organizational networks (Grant, 1996; Kang et al., 2007; Nahapiet & Goshal, 1998; Zahra & Nielsen, 2002). Behaviors associated with knowledge integration may be described as collaborative, routine enhancing and oriented towards the collective (e.g., Grant, 1996; Morris et al., 1993). The concept of contextual ambidexterity (Gibson & Birkinstaw, 2004; Simsek, 2009) is useful for understanding the conditions under which an organization can achieve both simultaneously.

Contextual ambidexterity describes situations where two distinct forms of behavior are desired within a single undifferentiated organization or business unit for which structural forms of ambidexterity are not appropriate or feasible (Gibson & Birkinstaw, 2004; Lubatkin, Simsek, Ling, & Veiga, 2006; Simsek, 2009). Contextual ambidexterity involves the creation of conditions in which the organization or unit is adaptable to changes in the task environment and simultaneously is able to pursue internal alignment to the top-down objectives of efficiency and/or quality of execution. Thus, contextual ambidexterity is applicable to the dilemma of creating both opportunity identification and knowledge integration capabilities. Gibson and Birkinstaw proposed that organizational context, including incentive systems, career management systems, culture and climate all contribute to what they term contextual ambidexterity and what Simsek labels behavioral ambidexterity. Work by Gibson and Birkinstaw and Simsek suggests that the HR function may play an important role in the production of behavioral ambidexterity. Future research to understand this role would not only enhance understanding of how HRM can support key entrepreneurial capabilities but also address the broader concern of how to build ambidextrous organizations.

A second key question that remains unresolved in the HR literature and holds broader significance is whether differentiated HR architectures (Lepak & Snell, 1999; 2002) help or hurt CE and its related outcomes. HR architectures may be unitary, with all employees experiencing similar terms, conditions, contracts types and exchange relationships. Alternately, they may be differentiated, with each employee or group of employees being treated differently. Several scholars have argued that rather than investing equally in all segments of the workforce, organizations should differentiate their HR architectures to enhance employment flexibility (Boxall, 1998; Lepak, Takeuchi & Snell, 2003; Tsui et al., 1997; Wright & Snell, 1998). Evidence suggests that such differentiation does occur (Lepak & Snell, 2002; Lepak et al., 2003). Employees performing strategically core work are bound to the organization by a high level of mutual investment and commitment, while non-core employees are party to more transactional relationships (Lepak & Snell, 2002; Lepak et al., 2003). Differentiation allows organizations to maintain a strong strategic core (Boxall, 1998) while having the flexibility to acquire non-core human capital on an as-needed basis (Lepak & Snell, 2002; Lepak et al., 2003). Differentiation also has cost advantages, because it avoids over-investment in non-core employees (e.g., Tsui, Pearce, Porter, & Tripoli, 1997) and preserves resources for other activities. The performance benefits of differentiation are distinct from those of investments in high commitment HR. It is possible for all employees to be covered by a high commitment architecture that is undifferentiated. It is also possible, in high commitment HR, to have a differentiated architecture that does
not have high levels of investment. In such a case, different employee groups may receive different treatment, but none are exposed to high commitment practices. The performance outcomes of these different combinations have yet to be empirically explored. On the one hand, differentiated architectures are expected to be most efficient, by targeting only strategically core employees with high commitment practices. However, as corporate entrepreneurship represents a knowledge and learning-based strategy, where new knowledge is not only generated but also must be integrated, it may be challenging to isolate an ‘entrepreneurial core’ within a workforce. Differentiation might undermine the very cooperation and coordination required to support a learning and risk taking strategy. As this is an open question, research is much needed to test both the differentiation hypothesis in general and its impact on entrepreneurial outcomes in particular.

A third major question which awaits deeper analysis is the issue of complementarities between HR architectures and capabilities that support CE (Chadwick & Dabu, 2009). The most commonly invoked explanation for the strategic role of HRM policies and practices is that they serve to attract, develop, motivate and retain human resources, which are assets that possess the desirable characteristics described by the resource-based view (RBV): value, scarcity, inimitability, non-tradability and non-substitutability (e.g., Barney, 1991; Boxall & Purcell, 2000; Wright & McMahan, 1992; Wright, Dunford & Snell, 2001). Human resources are distinctive because they are not depleted with use and they possess free will (Coff, 1997). As a result, managers are not only challenged to find ways to acquire these resources, but also to motivate and retain them so that their value creating potential can be realized.

In a search for a deeper theoretical understanding of the ways in which HRM practices and systems influence organizational performance, many scholars have turned to the mediating processes through which that influence occurs. For example, research has examined the mediating roles of work climate, positive social exchange relationships, organizational commitment, employee citizenship behaviors and employee turnover (e.g., Batt, 2002; Bowen & Ostroff, 2004; Gelade & Ivery, 2006; Sun, Aryee & Law, 2007). Enhanced HRM performance leads to enhance workforce effectiveness, productivity and reduced costs associated with turnover, which impact financial and market performance (e.g., Batt, 2002; Huselid, 1995). Without effective HRM the quality of the workforce would be diminished. Not only is bottom line performance enhanced through these mediating processes, but also top line performance. High performance and commitment-focused HR practices positively influence employee cooperation, which in turn influence knowledge exchange, learning, innovation and consequently top line growth (e.g., Collins & Smith, 2006; Zhang, Wan & Jia, 2008).

These explanations are consistent with what Makadok (2001) refers to as ‘resource picking’ advantages. HRM activities provide the organization with strategic resources that create value and are difficult to imitate: “managers gather information and analysis to outsmart the resource market in picking resources” (Makadok, 2001; p.387). Rents are generated when a firm is better at resource picking because it is able to obtain greater value from the resource than is paid for it. This direct explanation for the creation of ‘traditional’ Ricardian rents is implicit in most models of the strategic impact of HRM (e.g., Combs et al., 2006; Huselid, 1995; Lengnick-Hall et al., 2009). The HR system plays a
role in the development and retention of strategically valuable human capital and the appropriation of the benefits of employee activities (e.g., Kamoche, 1994; Kamoche & Mueller, 1995; Lado & Wilson, 1994). The return is higher levels of work effort and better retention rates which translate into superior organizational performance that exceeds the cost of investment (e.g., Becker & Huselid 1998; Combs et al., 2006; Huselid, 1995).

Resource picking represents one explanation for why investments in human resources will promote organizational performance. However, scholars have often voiced concern that this explanation is insufficient (e.g., Becker & Huselid, 2006; Huselid & Becker, 2011; Wright et al., 2001). Not all positions in an organization require human capital that is unique or scarce, and not all positions are equally influential upon core value creation processes (Lepak & Snell, 1999). Furthermore, the human capital that is the source of value creation is often specific to individual workers who are highly mobile, and firm specific skills can be developed through training. These observations lead to the conclusion that “instances when human resources can generate traditional Ricardian rents may be rare and often transitory” (Chadwick & Dabu, 2009; p.256).

A second route to performance is the combination of resources and processes to build organizational capabilities (Chadwick & Dabu, 2009; Wright et al, 2001). Capabilities refer to a firm’s capacity to deploy resources including knowledge, usually in combination with strategically important organizational processes, to affect a desired end (e.g., Amit & Shoemaker, 1993; Grant, 1996). Strategically important processes are those which lead to the creation of valued product attributes (Prahalad & Hamel, 1990). Capabilities are an ‘intermediate good’ (Amit & Schoemaker, 1993) that create value by enhancing the productivity of resources, and thereby influence more distal organizational performance metrics. The complementarity between resources and strategic processes is highly firm specific and path-dependent and leads to heterogeneity across firms (e.g., Teece et al., 1997). The development and specialization of complementary resources and processes over time increases causal ambiguity, and creates time compression diseconomies (Dierickx & Cool, 1989). Thus, capability-based advantages are difficult to imitate or acquire and form a source of ‘non-traditional’ Ricardian rents (Makadok, 2001).

The most important implication of this literature is that capabilities are influenced by investments in human resources in combination with other processes and technologies (Wright et al., 2001). However, this theoretical framing of the role of HRM has yet to receive significant empirical attention. It implies a moderating or interactive association between bundles of HR practices and specific organizational practices, processes or routines. Capabilities would be the unobservable intermediate outcome of this interaction. Entrepreneurial outcomes and other aspects of performance would then be mediated by the creation of those capabilities. The implication is a more subtle and complex relationship. It is also an open question whether the resource picking and capability building arguments are complements or substitutes. Future research needs to identify specific entrepreneurial capabilities and investigate the support that HR provides for those capabilities in interaction with key learning processes.
CONCLUSION

Much has been learned about the roles of the HR function and its associated constructs in supporting a strategy of entrepreneurship in established organizations. Yet, we are only at the beginning of our understanding. In many ways, theoretical development lags behind empirical work at this stage. Several significant challenges, as outlined above, need to be resolved by scholars in the future. We are confident that the field’s growing understanding of these phenomena can contribute to enhanced organizational capacity for entrepreneurial performance.

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